



U.S. Department of Energy  
Energy Efficiency  
and Renewable Energy



# Alternative Fuel School Buses: A View for Local Governments





# Outline of Presentation

- What Are Alternative Fuels?
- Why Do We Need Alternative Fuels?
- What are the Benefits and Costs of Alternative Fuel Use?
- Public Relations Benefits
- Are They Safe?
- Alternative Fuel School Buses at Work Across America
- What Is Available in Alternative Fuel School Buses?
- Funding Sources for Alternative Fuel Projects
- For More Information



# What Are Alternative Fuels?

- “Alternative Fuel” refers to vehicle fuels other than gasoline or diesel. For example,
  - Natural Gas
  - Propane
  - Ethanol
  - Biodiesel
  - Electricity
  - Hydrogen

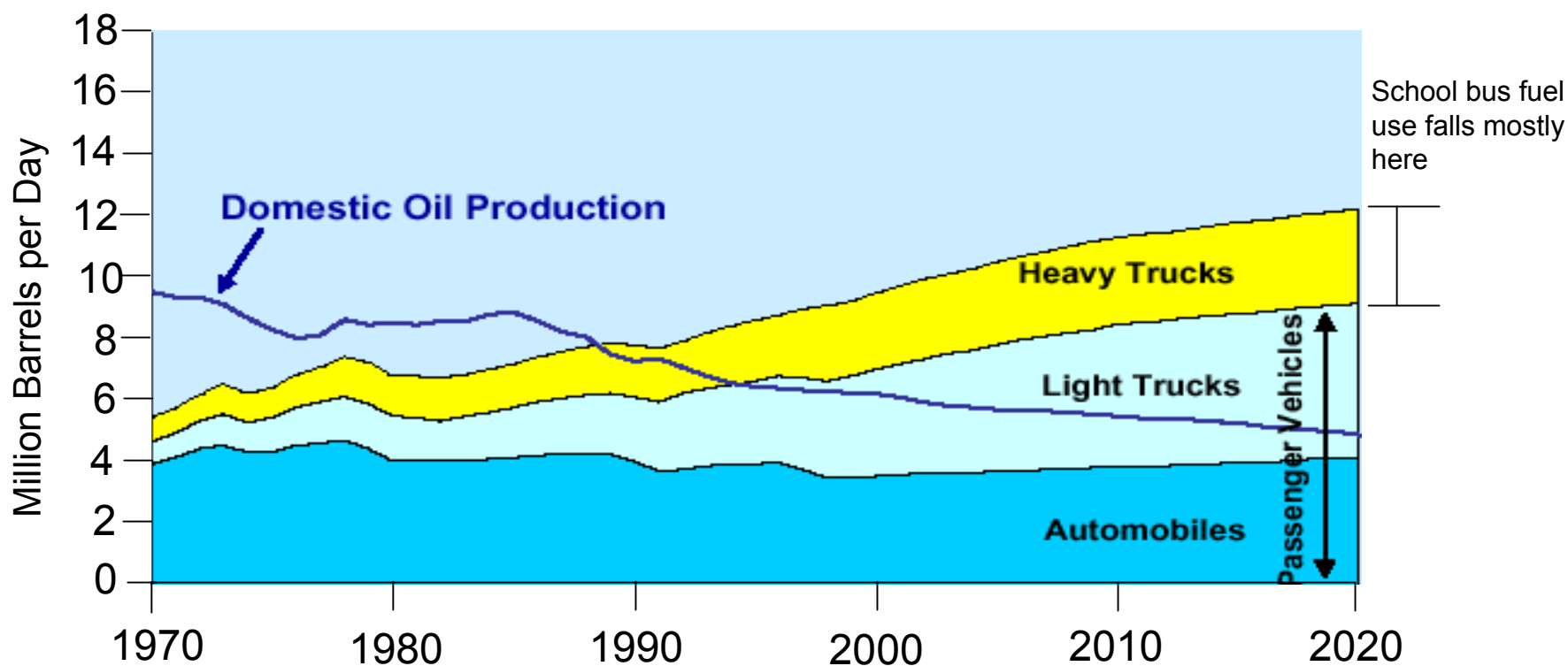


# Why Do We Need Alternative Fuels?

- Reduce American Use of Petroleum Fuels
  - Over half of U.S. transportation petroleum use is imported
  - In some states, imported petroleum use for transportation is as high as 85%
- Reduce Exhaust Emissions from Transportation Sources
  - Many regions of the U.S. are facing significant attainment issues as populations grow



# U.S. Highway Transportation Uses More Oil Than is Produced Domestically



Source: Transportation Energy Data Book: Edition 18; DOE/ORNL-6941, September 1998, and EIA Annual Energy Outlook 1999, DOE/EIA-0383(99), December 1998



# Benefits and Costs of Using Alternative Fuels

- Overall, fleets have seen savings of \$1,000 to \$3,000 per bus per year with alternative fuels
- Alternative fuel buses usually well-liked by operators (cleaner, quieter)
- Alternative fuels may help the region with EPA compliance with State Implementation Plans (SIPs)
- Alternative fuel buses typically cost more than diesel buses
  - Funding available to offset costs
- Fuel costs for alternative fuels can be significantly cheaper in many cases (depending on local situations)
- Alternative fuel refueling stations can be costly, but many areas already have such stations in place
  - Funding available for refueling stations





# Public Relations Benefits of Alternative Fuels

- Alternative fuel buses offer public relations benefits to the schools
  - Buses are very visible vehicles in community
  - Vehicles are cleaner (lower exhaust emissions)
  - Vehicles are quieter
  - Shows local leadership in improving environment for students
  - Provide visible opportunities to partner with other organizations and jurisdictions within the community or metropolitan area to achieve common goals



# Are Alternative Fuel School Buses Safe?

- School buses are one of the safest modes of transportation on the highway: alternative fuels don't significantly impact this safety
- No known school bus fatalities have resulted from an alternative fuel system
- Alternative fuel school buses meet all conventional bus safety standards plus additional safety standards for alternative fuels (tank safety cages, etc.)





## Alternative Fuel Buses Are at Work Throughout America

- Currently over 2,500 alternative fuel school buses in U.S.
  - 21 states across the U.S. in a wide range of applications and climates
  - Natural gas, propane, biodiesel
  - Displacing 4-5 million gallons of petroleum each year



# Available Products

- Several products available
  - Type D (transit-style school bus)
  - DOE is working with manufacturers to develop a Type C natural gas bus
- Mostly natural gas vehicles
- A new Type C propane school bus platform is now available for 2004
- No specific biodiesel products: biodiesel blends (up to 20% biodiesel and 80% regular diesel) can be used in most diesel engines





# Funding Sources for Alternative Fuel Vehicle Projects

- DOE Clean Cities State Energy Program Special Projects
  - Can fund incremental cost of vehicles and cost of refueling stations
  - Work with local Clean Cities Program to submit grant requests for projects
  - SEP is a competitive solicitation offered yearly
  - SEP School Bus Application Template available at <http://www.ccities.doe.gov/pdfs/bustutor.pdf>
- Congestion Mitigation and Air Quality (CMAQ) funding
  - Available through local planning organizations, administered by state DOT
  - Availability for alternative fuel projects varies by state
- State funds
- Local government funds
- Foundation funds
- Partnering with fuel providers to offset infrastructure costs or to reduce maintenance and operational costs or fuel costs



## In Summary

- Proven Technology in Use throughout U.S.
- Reduce Local Dependence on Imported Petroleum
- Public Relations Benefit: Schools are Seen as a “Better Neighbor”
  - Lower emissions than diesel (visible and odor): important for areas of operation and for student health
  - Buses usually significantly quieter than diesel (esp. natural gas)
- Potential for Overall Cost Savings



## For More Information

- National Clean Cities Program
  - <http://www.ccities.doe.gov>
- Natural Gas Vehicle Coalition
  - <http://www.ngvc.org>
- Propane Vehicle Council
  - <http://www.propanevehicle.org>
- National Biodiesel Board
  - <http://www.nbb.org>
- “Alternative Fuel School Buses Earn High Marks”,  
Alternative Fuel News Volume 5 Number 3
  - <http://www.ccities.doe.gov>